



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: ALF 502R-3      BYPASS RATIO: 5.7  
 UNIQUE ID NUMBER: 1TL002      PRESSURE RATIO ( $\pi_{00}$ ): 11.4  
 COMBUSTOR:  
 ENGINE TYPE: TF      RATED THRUST ( $F_{00}$ ) (kN): 29.8

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	17.5	117.9	32.5	14.3
AS % OF ORIGINAL LIMIT	89.3	99.9	51.8	43.4
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			64.7	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			65.5	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			65.8	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			69.8	

### DATA STATUS

- PRE-REGULATION  
 x CERTIFICATION  
 - REVISED (SEE REMARKS)

### TEST ENGINE STATUS

x NEWLY MANUFACTURED ENGINES  
 - DEDICATED ENGINES TO PRODUCTION STANDARD  
 - OTHER (SEE REMARKS)

### EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE  
 (ANNEX 16 VOLUME II)

### CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)  
 x OUT OF PRODUCTION (DATE: - )  
 - OUT OF SERVICE (DATE: - )

### MEASURED DATA

MODE	POWER SETTING (%F <sub>00</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NO <sub>x</sub>	
TAKE-OFF	100	0.7	0.348	0.06	0.43	11.20	12.6
CLIMB OUT	85	2.2	0.288	0.05	0.50	9.94	12.0
APPROACH	30	4.0	0.103	0.29	8.43	6.15	5.5
IDLE	7	26.0	0.043	6.51	44.67	3.30	2.1
LTO TOTAL FUEL (kg) or EMISSIONS (g)			145	449	3244	915	-
NUMBER OF ENGINES				3	3	3	3
NUMBER OF TESTS				3	3	3	3
AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX)				15.0	109.0	30.7	13.0
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				3.3	10.6	0.8	2.4
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				11.9-18.4	100.2-120.8	29.9-31.45	10.2-14.4

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT - POWER SETTINGS  
 STAGE BLEED 20 (% CORE FLOW) AT 8.41kN POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	101.3-102.4
TEMPERATURE (K)	288-293
ABS HUMIDITY (kg/kg)	0.0088-0.0108

### FUEL

SPEC	0.81
H/C	1.92
AROM (%)	19.7

MANUFACTURER: Textron Lycoming  
 TEST ORGANIZATION: Textron Lycoming  
 TEST LOCATION: Stratford, CT  
 TEST DATES: 07/09/1982-20/09/1982

### REMARKS

Compliance with Fuel Venting requirements: - ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)